

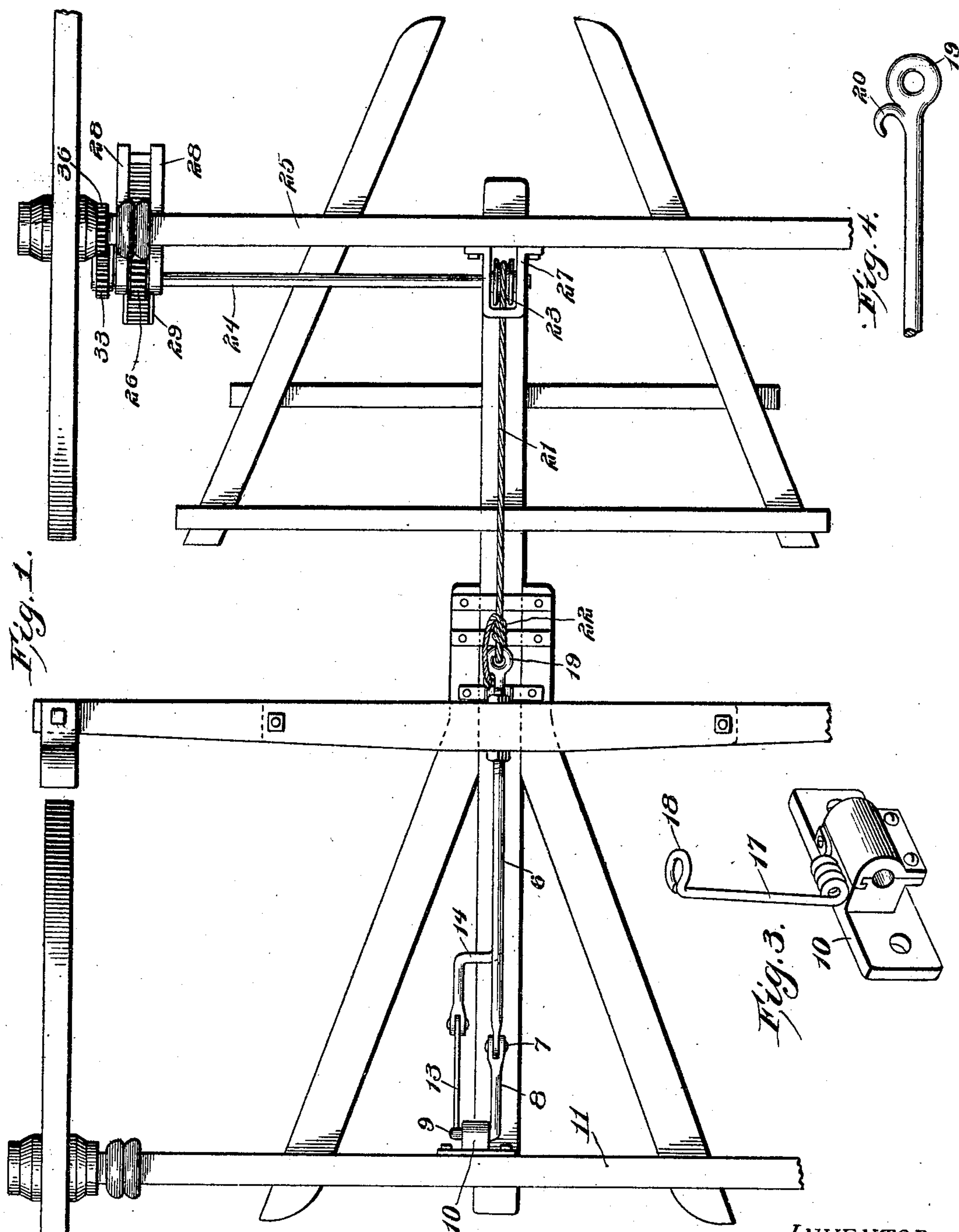
No. 840,951.

PATENTED JAN. 8, 1907.

H. C. NEALE.  
BRAKE.

APPLICATION FILED MAR. 3, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

Louis R. Heinrichs  
John F. Byrum

INVENTOR  
*Henry C. Neale*

BY *Victor J. Travis*  
Attorney

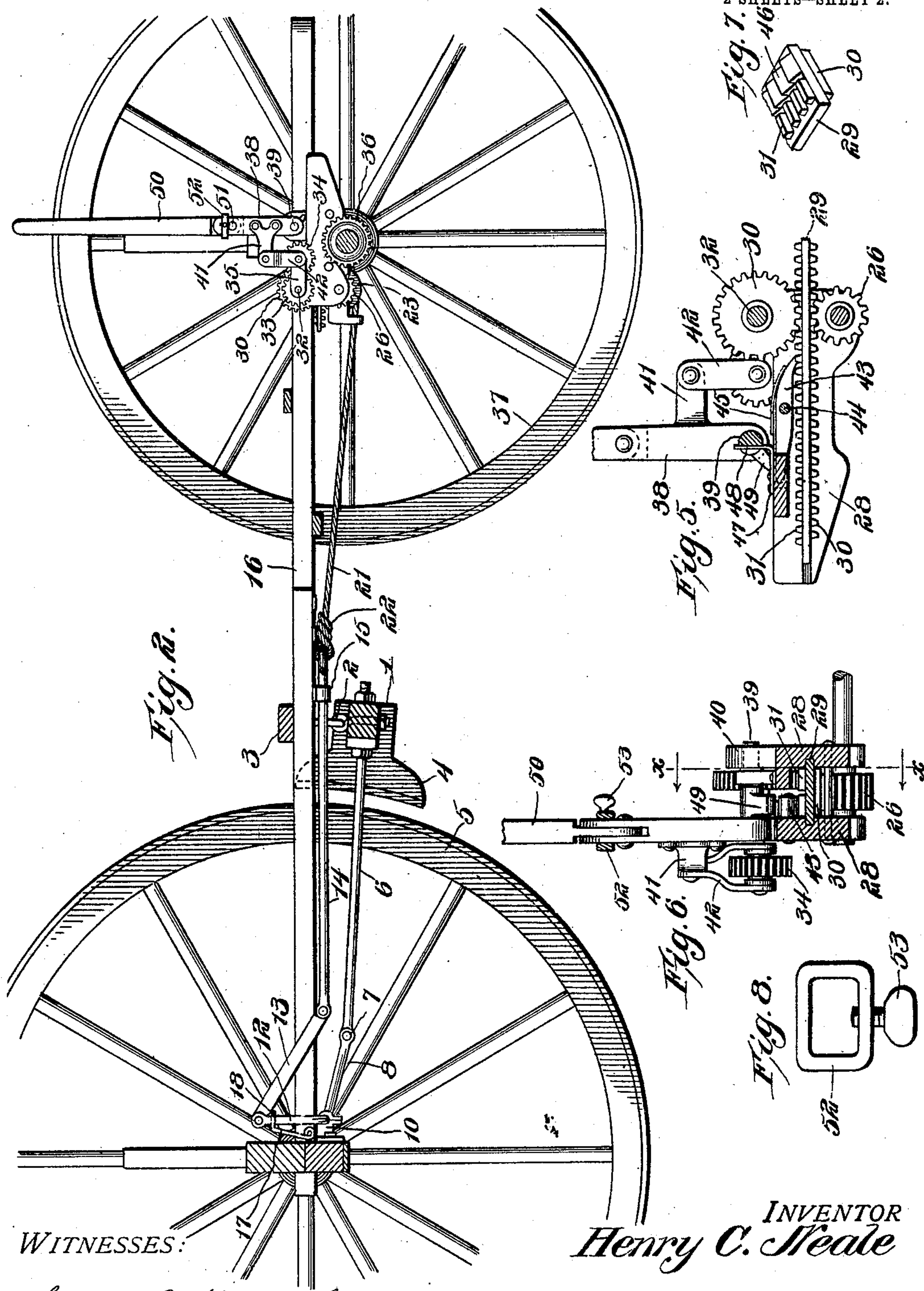
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# UNITED STATES PATENT OFFICE.

HENRY C. NEALE, OF PHILADELPHIA, MISSISSIPPI.

## BRAKE.

No. 840,951.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed March 3, 1906. Serial No. 304,009.

*To all whom it may concern:*

Be it known that I, HENRY C. NEALE, a citizen of the United States, residing at Philadelphia, in the county of Neshoba and State of Mississippi, have invented new and useful Improvements in Brakes, of which the following is a specification.

This invention relates to brakes for wagons and vehicles generally, the object of the invention being to provide a brake especially designed for wagons and adapted to be mounted wholly upon the running-gear without any connection whatever with the wagon-body, a further object of the invention being to construct the parts of the brake mechanism in such manner that such mechanism will not interfere in any way with loading and unloading the wagon, the said brake mechanism as a whole being carried by the truck or running-gear and located out of the way.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination, and arrangement of parts hereinafter more fully illustrated, described, and claimed.

In the accompanying drawings, Figure 1 is a bottom plan view of the running-gear of a wagon, showing the improved brake mechanism applied thereto. Fig. 2 is a vertical longitudinal section through the same. Fig. 3 is an enlarged detail perspective view of the bracket connected with the rear axle. Fig. 4 is a detail view of the forward end of the slide-rod, showing the provision for securing the brake-actuating cable thereto. Fig. 5 is a sectional elevation on the line  $xx$  of Fig. 6, showing the gearing by means of which the brake connections are thrown into operation. Fig. 6 is a cross-section through the same. Fig. 7 is a fragmentary perspective view of one end of the sliding rack, showing the arrangement of teeth thereon. Fig. 8 is a detail view of the ferrule or slip-collar used with the sectional hand-lever.

The brake mechanism contemplated herein comprises, essentially, a brake-beam 1, extending beneath the reach-bar or coupling-pole of the wagon and suspended by means of links 2, which are supported at their upper ends by a cross-bar 3, extending across the coupling-pole or reach-bar, as shown in Fig. 2.

The brake-shoes (shown at 4) operate in connection with the rear wheels 5, and the brake-beam is moved toward and away from the wheels 5 by means of a brake-rod 6, the

rear end of which is pivotally connected at 7 to one arm 8 of a two-armed lever having its journal portion 9 mounted in a bearing-bracket 10, connected with the rear axle 11. The other arm 12 of said two-armed lever is connected, by means of a pivotal link 13, to the rear end of a slide-rod 14, which is mounted in one or more guides 15, connected to the coupling-pole or reach-bar 16, as shown in Fig. 2.

17 designates a relief-spring which extends upward from and is connected fast to the bracket 10 and provided at its free end with an eye 18, through which the arm 12 of the two-armed lever passes, said spring exerting its tension to draw back on the lever-arm 12 and rock the arm 8 upward to allow the brake-rod 6 to recede and permit the brake-shoes 4 to move out of contact with the wheels. The relief-spring 17 also acts on the remainder of the brake mechanism to restore all of the parts to their normal inoperative position in a manner which will hereinafter more clearly appear.

The forward end of the rod 14 is provided with an eye 19, and at one side thereof there is arranged a hook 20. 21 designates the operating-cable of the brake connections, which has its rear end inserted through the eye 19 of the rod 14 and wrapped several times around itself, as shown at 22, the extremity of the cable being finally slipped under and engaged with the hook 20 in the manner illustrated in Fig. 1. The forward end of said cable 21 is connected to a drum or pulley 23 and is adapted to be wound thereon for drawing the rod 14 forward and applying the brakes in the manner above described. The drum or pulley 23 is fast on a winding-shaft 24, extending parallel with the front axle and having fast on its outer end a winding gear-wheel 26. The inner end of the shaft 24 has bearing in a bracket 27, connected with the front axle, while the outer end of said shaft has bearing in a pair of parallel housing-plates 28, secured to the bolster of the front axle and extending above the same. The plates 28 are provided upon their inner sides with grooves in which is mounted a sliding rack 29, provided on its under side with teeth 30, which engage the teeth of the gear-wheel 26 and turn said gear when the sliding rack is moved lengthwise. Motion is imparted to the sliding rack 29 by means of a rack-actuating gear 30<sup>x</sup>, which meshes with teeth 31 on the upper face of the rack, as shown in Fig. 5. This gear-wheel 30<sup>x</sup> is



mounted fast on a short shaft 32, mounted in bearings on the plates 28, and secured fast on the outer end of said shaft 32 is a pinion 33, which meshes with another pinion 34, said pinions being held constantly in mesh with each other by means of a pinion-frame comprising oppositely-arranged side bars or plates 35. By reference to Fig. 2 it will be seen that the frame 35 is capable of being moved upward and downward around the shaft 32 as a center for the purpose of moving the pinion 34 into and out of engagement with a gear-wheel 36, fast on the hub of the adjacent front wheel 37.

The pinion-frame 35 is vibrated or moved up and down by means of a hand-lever 38, fulcrumed at its lower end by means of a stub-shaft 39, mounted in a suitable bearing 40, extending upward from one of the side plates 28. The hand-lever 38 is provided with a laterally-extending arm 41, to which are attached one or more pivotal links 42, which connect pivotally with the vibratory pinion-frame 35.

It will now be seen that as the hand-lever 38 is rocked on its fulcrum the pinion-frame 35 is raised or lowered, thereby moving the pinion 34 into or out of mesh with the wheel 36, and as the wagon-wheel 37 revolves motion is thus transmitted, through the gears 36, 34, 33, and 30<sup>x</sup>, to the sliding rack 29, the latter imparting rotary motion to the gear-wheel 26 and the shaft 24 and pulley or drum 23, thereby winding up or unwinding the cable 21 for operating the brake connections.

Mounted between the plates 28, just over the sliding rack 29, is a detent 43, the same being pivoted intermediate its ends at 44 and having the engaging point thereof pressed downward by means of a spring 45, said detent engaging ratchet-teeth 46 on the upper side of the sliding rack 29 to hold said rack after the same has been slid forward in the operation hereinabove described, the detent holding the rack in such position until released by the hand-lever.

Connected to the heel end of the detent 43 is a spring 47, which extends upward and bears against a flat face 48 on the stub-shaft 39, to which the lower end of the hand-lever 38 is fastened, the function of this spring being to hold the hand-lever in an upright position when the brake mechanism is inoperative or not in use. The hand-lever 38 is provided with a lug 49, which in the return movement of said hand-lever acts against the heel end of the detent 43, depressing the said heel end and correspondingly elevating the point of the detent, so as to throw the same out of engagement with the teeth 46 of the rack, thereby permitting the rack to slide back and resume its normal inoperative position, the rack being drawn back by the relief-spring 17 and the connections between said spring and the sliding rack 29.

The upper portion or section 50 of the hand-lever is pivotally connected at 51 to the lower section 38 of said hand-lever, so that when the brake is not in use the upper longer section of the lever may be swung downward out of the way. The two sections of the lever are held in longitudinal alinement with each other by means of a ferrule or slip-collar 52, which embraces the overlapping portions of the two lever-sections and is adapted to be secured in fixed relation to said overlapping portions by means of a binding-screw 53.

In operation to apply the brake the hand-lever 50 is drawn backward, the result being that the pinion 34 is moved downward into engagement with the revolving wheel 36, carried by the front wheel 37. This imparts motion to the train of gears and slides the rack 29 lengthwise, thus revolving the wheel 26 and the shaft 24 and winding the cable 21 on the pulley or drum 23. This draws forward on the slide-rod 14, rocking the two-armed lever journaled in the bracket on the rear axle and pulls the brake-rod 6, so as to move the brake-shoes 4 into engagement with the rear wheels 5. The parts are held in this position by means of the detent 43. To release the brake, the hand-lever 50 is moved forward, which has the effect of rocking the detent 43 out of engagement with the rack 29, whereupon the relief-spring 17 restores all of the parts to their inoperative position.

I claim—

1. A brake comprising a brake-shoe, brake connections therefor embodying a cable, a winding-shaft for said cable, a winding-gear on said shaft, a reciprocatory rack meshing with said winding-gear, a gear on one of the vehicle-wheels, means adapting said last-named gear to actuate the rack, and a hand-lever controlling the actuating connections between the gear on the vehicle-wheel and said rack.

2. A brake comprising a brake-shoe, brake connections embodying a cable, a winding-shaft for said cable, a winding-gear on said shaft, a reciprocatory rack-bar for actuating said gear, a gear-wheel on one of the vehicle-wheels, a shaft geared to the rack, a pinion-frame carrying pinions for actuating said shaft, one of said pinions being movable into and out of engagement with the gear on the vehicle-wheel, and a hand-lever connected with said movable pinion-frame, substantially as and for the purpose described.

3. A brake comprising a brake-shoe, brake connections therefor embodying a cable, a winding-shaft for said cable, a gear on said shaft, a gear on one of the vehicle-wheels, a reciprocatory rack engaging said gear on the winding-shaft, interposed gears for communicating motion from the gear on the vehicle-wheel to the gear on the winding-shaft,



means embodying a hand-lever for shifting the gears to throw the same into and out of operation, and a detent engaging said reciprocatory rack, substantially as and for  
5 the purpose described.

4. A brake comprising a brake-shoe, a two-armed lever fulcrumed on a bracket connected with the rear axle, a brake-rod connecting the brake-shoe with said lever, a  
10 slide-rod connected with one arm of said lever and provided at its forward end with an eye and a laterally-offset hook, and brake con-

nections embodying a cable and winding means therefor, said cable having the end portion thereof inserted through the eye of the  
15 slide-rod and the extremity thereof engaged within said offset hook, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY C. NEALE.

Witnesses:

CLAUD YATES,  
J. M. MORROW.